

Case (1) Preoperative Evaluation

1. What are THE GOALS OF PREOPERATIVE ASSESSMENT?

1. To identify patients at risk for perioperative complications.
 2. To identify patients at risk for postoperative complications.
 3. To identify patients at risk for postoperative morbidity and mortality.
 4. To identify patients at risk for postoperative mortality.

1. To identify patients at risk for perioperative complications.
 2. To identify patients at risk for postoperative complications.
 3. To identify patients at risk for postoperative morbidity and mortality.
 4. To identify patients at risk for postoperative mortality.

3. What is the focus of the anesthesia evaluation for arthritis.

Some musculoskeletal conditions present more commonly for orthopedic procedures, e.g. rheumatoid arthritis (RA), osteoarthritis, and osteoporosis.

RA and osteoarthritis:

- **RA:** Most patients with RA have mild to moderate disease. However, severe disease can occur, particularly in the hands and feet. RA can also affect the spine, particularly the cervical spine.
- **Osteoarthritis:** Most patients with OA have mild to moderate disease. However, severe disease can occur, particularly in the hips and knees. OA can also affect the spine, particularly the lumbar spine.

Osteoporosis:

- **RA and osteoarthritis:** up to 80% of RA patients have osteoporosis. In addition, osteoporosis is also common in OA patients. Care must be taken when moving the head and neck position as well as in sedating patients.
- **Temporarily alter pain medication:** can reduce mouth coating. In addition, evaluate for any other medical conditions.

4. What is the focus of the anesthesia evaluation for cardiac and respiratory systems in workday stress patients?

Cardiovascular system:

- **Coronary artery disease:** Coronary artery disease (CAD) is the most common cardiovascular disease. It is characterized by the narrowing or blockage of the coronary arteries, which supply the heart with oxygenated blood.
- **Myocardial infarction (MI):** MI is a life-threatening condition that occurs when the heart muscle is deprived of oxygen. It is often caused by a blood clot that blocks one of the coronary arteries.
- **Heart failure:** Heart failure is a condition in which the heart is unable to pump enough blood to meet the body's needs. It can be caused by a variety of factors, including CAD, high blood pressure, and diabetes.

Respiratory system:

- **Asthma:** Asthma is a chronic respiratory condition characterized by inflammation and narrowing of the airways. It can be triggered by a variety of factors, including allergens, irritants, and stress.
- **Chronic obstructive pulmonary disease (COPD):** COPD is a chronic respiratory condition characterized by inflammation and destruction of the lung tissue. It is often caused by long-term exposure to irritants, such as cigarette smoke.

7. What is Preoperative Medications you can be given to the patient before surgery?

Preoperative medications are given to the patient to reduce anxiety, provide analgesia, and prevent nausea and vomiting. They are also used to optimize the patient's physiological status for surgery.

1. **Anxiolytics:** These drugs are used to reduce anxiety and provide sedation. Examples include benzodiazepines (e.g., diazepam, midazolam).
2. **Analgesics:** These drugs are used to provide pain relief. Examples include opioids (e.g., morphine, fentanyl) and non-opioid analgesics (e.g., acetaminophen, NSAIDs).
3. **Antiemetics:** These drugs are used to prevent nausea and vomiting. Examples include ondansetron, promethazine, and droperidol.
4. **Anticholinergics:** These drugs are used to reduce secretions and prevent bradycardia. Examples include atropine and glycopyrronium.

Case (1) Preoperative Evaluation

A 45-year-old man is undergoing a preoperative evaluation for a laparoscopic cholecystectomy due to acute cholecystitis.

2. What does ASA status 3 mean?

ASA (American Society of Anesthesiologists) status 3 is defined as a patient with severe systemic disease. In this case, the patient has controlled CHF and stable angina.

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4. What is the focus of the anesthesia evaluation of morbid obesity, how can you calculate BMI?

Preoperative assessment for patients with morbid obesity:

- **Cardiovascular system:** Morbid obesity is associated with an increased risk of cardiovascular disease, including hypertension, coronary artery disease, and heart failure. Preoperative assessment should include a thorough history and physical examination, as well as ECG and chest X-ray.
- **Respiratory system:** Morbid obesity is associated with an increased risk of respiratory complications, including obstructive sleep apnea (OSA), hypoventilation syndrome, and pulmonary hypertension. Preoperative assessment should include a thorough history and physical examination, as well as spirometry and polysomnography.
- **Endocrine system:** Morbid obesity is associated with an increased risk of endocrine complications, including type 2 diabetes mellitus and hypothyroidism. Preoperative assessment should include a thorough history and physical examination, as well as fasting glucose and thyroid function tests.

How to calculate BMI:

$$BMI = \frac{\text{Weight (kg)}}{\text{Height (m)}^2}$$

6. What is the NPO Status required preoperative?

NPO (Nothing by Mouth) status:

- **General anesthesia:** Patients undergoing general anesthesia must be NPO for at least 6-8 hours before surgery to reduce the risk of aspiration.
- **Regional anesthesia:** Patients undergoing regional anesthesia do not need to be NPO.
- **Sedation:** Patients undergoing sedation should be NPO for at least 2-4 hours before surgery.

Case (1) Preoperative Evaluation

1. What are THE GOALS OF PREOPERATIVE ASSESSMENT?

1. To identify and correct potential problems that may affect the patient's ability to tolerate anesthesia and surgery.

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3. What is the focus of the anesthesia evaluation for arthritis.

Some musculoskeletal conditions present more commonly for orthopedic procedures, e.g. hip arthroscopy for OA, total hip and total knee arthroplasty.

Problems to watch for:

- Pain from positioning or already present at the time of anesthesia, even though musculoskeletal pain is expected.
- Airway and ventilation: up to 60% of OA patients have neck discomfort, including cervical and thoracic. Call them to inform where moving the head and neck position as well as positioning patients.
- Temperature/airway: joint involvement can reduce mouth opening, leading to evaluation of airway and mouth opening.

4. What is the focus of the anesthesia evaluation for cardiac and respiratory systems in workday stress patients?

Respiratory system:

- Patients with obstructive pulmonary disease (COPD) are at greater risk for airway and pulmonary complications during anesthesia.
- Patients with asthma should receive preoperative steroids.
- Patients with heart failure should receive beta-blockers, ACE inhibitors, and diuretics.
- Patients with chronic kidney disease should receive beta-blockers, ACE inhibitors, and diuretics.
- Patients with chronic liver disease should receive beta-blockers, ACE inhibitors, and diuretics.

Cardiovascular system:

- Patients with hypertension should receive beta-blockers, ACE inhibitors, and diuretics.
- Patients with coronary artery disease should receive beta-blockers, ACE inhibitors, and diuretics.
- Patients with peripheral vascular disease should receive beta-blockers, ACE inhibitors, and diuretics.
- Patients with aortic aneurysm should receive beta-blockers, ACE inhibitors, and diuretics.
- Patients with aortic dissection should receive beta-blockers, ACE inhibitors, and diuretics.

7. What is Preoperative Medications you can be given to the patient before surgery?

Preoperative medications are given to the patient to reduce anxiety, pain, and nausea, and to improve the patient's ability to tolerate anesthesia and surgery.

1. Anxiolytics: benzodiazepines (midazolam, diazepam)

2. Analgesics: opioids (morphine, fentanyl)

3. Antiemetics: ondansetron, promethazine

4. Anticholinergics: atropine, glycopyrronium

5. Beta-blockers: metoprolol, propranolol

6. ACE inhibitors: lisinopril, ramipril

7. Diuretics: furosemide, bumetanide

8. Anticoagulants: warfarin, aspirin

9. Antibiotics: cefazolin, vancomycin

10. Antifungals: fluconazole, voriconazole

Case (1) Preoperative Evaluation

A 45-year-old man is undergoing a preoperative evaluation for a laparoscopic cholecystectomy due to acute cholecystitis.

2. What does ASA status 3 mean?

Body weight 110 kg, height 1.8 m, BP 160/95. His notes:

It defines as: patients with severe systemic disease (ex: controlled CHF, Stable angina)

ASA 3: Severe systemic disease, controlled

ASA 4: Severe systemic disease, not controlled

ASA 5: Moribund, limited to surgery

ASA 6: Brain-dead organ donor

4. What is the focus of the anesthesia evaluation of morbid obesity, how can you calculate BMI?

Preoperative assessment for patients with morbid obesity is needed to assess the patient's ability to tolerate the proposed surgery, to discuss the anesthetic and surgical options, and to coordinate care with the patient's primary care physician and other specialists.

Body Mass Index (BMI) calculation:

$$BMI = \frac{\text{Weight (kg)}}{\text{Height (m)}^2}$$

Example: Weight = 110 kg, Height = 1.8 m

$$BMI = \frac{110}{1.8^2} = \frac{110}{3.24} = 34.0$$

Interpretation: BMI 34.0 is classified as morbid obesity.

6. What is the NPO Status required preoperative?

Patients undergoing general, regional, or monitored anesthesia care will be NPO after midnight on the day of surgery.

NPO Status:

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Case (1) Preoperative Evaluation

A 45-year-old man is undergoing a preoperative evaluation for a laparoscopic cholecystectomy due to acute cholecystitis.

1. What are THE GOALS OF PREOPERATIVE ASSESSMENT?

He has a history of rheumatoid arthritis for 10 years. After the evaluation, the anesthesiologist determines that the patient is ASA status

The goal of preoperative assessment is :

1. To educate the patient about anesthesia
2. Provide perioperative care
3. Check medical history to the patient and refer him to other specialty like cardiac for example
4. Plan anesthesia with respecting patient choices
5. Provide analgesia post operatively

- There are a number of issues to consider in preparing the patient for surgery, including the timing of surgery, improving the physical status of the patient, information for the patient and ensuring that the correct procedure is carried out.

- It is to assess the risks associated with their procedure. Whilst it is not possible to give an exact figure. There are two main areas to consider – the patient and the proposed surgery

- It is the grading system is not intended for use as a measure to predict operative risk.

- There are many general risk-scoring systems; the most well known is the American Society of Anesthesiologists (ASA) grading

Table 6.3 ASA grading

ASA grade	Definition	Example
I	A normal healthy patient	
II	A patient with mild systemic disease	Well-controlled hypertension, asthma
III	A patient with severe systemic disease	Controlled CHF, stable angina
IV	A patient with severe systemic disease that is a constant threat to life	Unstable angina, symptomatic COPD, symptomatic CHF
V	A moribund patient who is not expected to survive without the operation	Multiorgan failure, sepsis syndrome with haemodynamic instability
VI	A declared brain-dead patient whose organs are being removed for donor purposes	

Emergencies are followed by the letter E.
CHF, congestive heart failure; COPD, chronic obstructive pulmonary disease.

2. What does ASA status 3 mean?

Body weight 118kg, height 161, Bp: 165/89 HR: 98/min

It defines as: patients with sever systemic disease
(ex: controlled CHF, Stable angina)

Table 6.3 ASA grading

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Emergencies are followed by the letter E.
CHF, congestive heart failure; COPD, chronic obstructive pulmonary disease.

3. What is the focus of the anesthesia evaluation for arthritis.

Some musculoskeletal conditions present more commonly for orthopaedic procedures (e.g. rheumatoid arthritis (RA), osteoarthritis and ankylosing spondylitis).

Problems can include:

- **Pain: even positioning an awake patient in the anaesthetic room might exacerbate joint symptoms. Pain can markedly limit exercise tolerance.**
- **Airway and cervical spine: up to 80% of RA patients have neck involvement, including instability and subluxation. Care must be taken when moving the head and neck position as well as transferring patients.**
- **Temporomandibular joint involvement can reduce mouth opening, hindering intubation or laryngeal mask insertion**

4. What is the focus of the anesthesia evaluation of morbid obesity, how you can calculate BMI?

- Preoperative evaluation for patients with morbid obesity is used to assess the anaesthetic risks in relation to the proposed surgery, to decide the anaesthetic technique (general, regional, or a combination) and to plan the postoperative care including any analgesic regimens.

Preoperative evaluation is used to assess the anaesthetic risks in relation to the proposed surgery, to decide the anaesthetic technique (general, regional, or a combination) and to plan the postoperative care including any analgesic regimens.

- **Body Mass Index can be calculated by: dividing the patient's weight in kilograms by their height in metres squared (kg/m).**

BMI (kg/m ²)	
<25	Normal
25-30	Overweight
30-35	Obese
>35	Morbidly Obese

5. What is the focus of the anesthesia evaluation for cardiac and respiratory system in morbidly obese patients?

Respiratory system

Obstructive sleep apnoea (OSA)

Patients with OSA experience periods of apnoea (greater than 10 seconds) and hypoventilation during sleep, with resultant desaturation and/or wakening.

Difficult intubation

Factors leading to difficult intubation include an increase in upper airway soft tissues, large tongue, fat face and cheeks, and a short fat neck. Neck mobility and mouth opening may also be reduced. Large breasts may hamper laryngoscope insertion.

Ventilation

Bag mask ventilation may be more difficult due to increased mass on the chest as well as increased abdominal pressure being displaced towards the head in an anesthetized and supine patient.

Cardiovascular system:

Ischemic heart disease, hypertension, cardiac failure and cardiac dysrhythmias are more common due to hypoxia, hypercapnia.

6. What is the NPO Status required preoperative?

- Adults receiving general, regional, or monitored anesthesia care will be NPO after midnight preceding surgery.

Guidelines for NPO status in children:

Age	Solids	Clear liquids
<6 mos.	4 ⁰	2 ⁰
6-36 mos.	6 ⁰	3 ⁰
3-6 yr.	8 ⁰	3 ⁰

6 years or older:

NPO after midnight or at least 8 hours prior to arrival time.

- Patients receiving local anesthesia will follow any NPO instructions given by their surgeon. If no orders are given, the patient will be instructed to remain NPO after midnight.

7. What is Preoperative Medications you can be given to the patient before surgery?

Regarding rheumatoid arthritis the patient's current medication must be reviewed. If he is taking corticosteroids, extra steroid might need to be given in the perioperative period.

The 6 As of premedication:

- 1- Anxiolysis - the best anxiolytic is the anesthetist who visits the patient and listens to the patient (Benzodiazepines, phenothiazines, B-blockers)
- 2- Amnesia (lorazepam)
- 3- Anti-emetic (dopamine antagonists, antihistamines, anticholinergics, phenothiazines, 5-hydroxytryptamine antagonists, α_2 - agonists: clonidine, Dex.)
- 4- Antacid (Oral sodium citrate, Ranitidine , Proton inhibitors, Metoclopramide, naso- or orogastric tube.)
- 5- Anti-autonomic (Halothane, suxamethonium))
- 6- Analgesic

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3. What is the focus of the anesthesia evaluation for arthritis.

Some musculoskeletal conditions present more commonly for orthopedic procedures, e.g. hip arthroscopy for OA, total hip/TKR and arthroscopy for ACL.

Problems to watch for:

- Pain upon positioning or moving patient on the operating room table
- Pain upon positioning or moving patient on the operating room table
- Pain upon positioning or moving patient on the operating room table

Assess and correct if up to 50% of OA patients have such comorbidities, including osteoporosis and osteoarthritis. Call them to action when moving the head and neck position as well as lowering patients.

Temporarily alter joint movement can reduce neck opening, leading to evaluation of cervical neck motion.

4. What is the focus of the anesthesia evaluation for cardiac and respiratory systems in workday stress patients?

Respiratory system:

- Reduced lung volumes
- Reduced lung volumes
- Reduced lung volumes

Cardiovascular system:

- Increased heart rate
- Increased heart rate
- Increased heart rate

7. What is Preoperative Medications you can be given to the patient before surgery?

Preoperative medications are given to the patient to reduce anxiety, pain, and nausea. They also help to reduce the risk of complications.

1. Anxiolytics: diazepam, lorazepam, midazolam
2. Analgesics: morphine, fentanyl, hydromorphone, oxycodone, tramadol
3. Antiemetics: ondansetron, granisetron, metoclopramide, prochlorperazine
4. Anticholinergics: atropine, glycopyrronium, scopolamine
5. Antibiotics: cefazolin, vancomycin, clindamycin
6. Anticoagulants: aspirin, clopidogrel, warfarin

Case (1) Preoperative Evaluation

A 45-year-old man is undergoing a preoperative evaluation for a laparoscopic cholecystectomy due to acute cholecystitis.

2. What does ASA status 3 mean?

Body weight 110 kg, height 1.81 m, BP 110/65. His notes:

It defines as: patients with severe systemic disease (ex: controlled CHF, Stable angina)

ASA I	ASA II	ASA III	ASA IV	ASA V
ASA I	ASA II	ASA III	ASA IV	ASA V
ASA I	ASA II	ASA III	ASA IV	ASA V

4. What is the focus of the anesthesia evaluation of morbid obesity, how can you calculate BMI?

Preoperative assessment for patients with morbid obesity is needed to assess the patient's ability to tolerate the proposed surgery, to detect the associated comorbidities, to plan the anesthesia and to monitor the patient's response to anesthesia.

Body Mass Index (BMI) can be calculated by dividing the patient's weight in kilograms by their height in meters squared (kg/m²).

Weight (kg)	Height (m)	BMI (kg/m ²)
70	1.75	22.9
100	1.75	32.7
150	1.75	48.8

6. What is the NPO Status required preoperative?

Patients undergoing general, regional, or monitored anesthesia care will be NPO after midnight on the day of surgery.

Exceptions to NPO status:

- Patients requiring clear liquids up to 2 hours before surgery
- Patients requiring clear liquids up to 2 hours before surgery